WHAT IS CLAIMED IS:

1. An antenna array for communicating information via a wireless microwave link between two locations, the antenna array comprising:

at least two antenna elements each to transmit information as a narrow beam signal to be directed toward a receiver at a remote location, the antenna elements including at least one antenna element to transmit a narrow beam signal toward a redirection point different from the receiver; and

a redirection device located at the redirection point to receive the narrow beam signal from the at least one antenna element and to redirect the received narrow beam signal toward the receiver, wherein the redirection point is located such that the narrow beam signals from the at least two antenna elements converge and overlap to form an interference pattern proximate to the receiver, the interference pattern includes peaks and nulls having a peak-to-peak spacing narrower than a width of each of the received narrow beam signals.

2. The antenna array of Claim 1 wherein the redirection device and others of the antenna elements that transmit narrow beam signals directly towards the receiver are spaced apart by a separation distance.

3. The antenna array of Claim 2 wherein the separation distance is selected to approximately solve the following equation;

$$x \approx \sqrt{\frac{\lambda \cdot d}{2}}$$

where: x is the separation distance,

d is a distance between a location of the at least two antennas and the receiver, and

lambda is a wavelength of the narrow beam signals.

4. The antenna array of Claim 1 wherein another of the at least two antenna elements aims another narrow beam signal directly at the second location.

5. The antenna array of Claim 1 wherein the peak-to-peak spacing is approximately equal to twice the separation distance.

6. The antenna array of Claim 1 wherein the redirection device comprises a curve-shaped passive reflector.

7. The antenna array of Claim 1 wherein the redirection device comprises a flat-plate reflector.

8. The antenna array of Claim 1 wherein one or more of the antenna elements comprises a standard parabolic antenna.

9. The antenna array of Claim 4 wherein one or more of the antenna elements comprises a curve-shaped antenna.

10. The antenna array of Claim 1 wherein the redirection device comprises a reflector set at an angle of 45 degrees relative to a path of the narrow band signal from the corresponding antenna element.

11. The antenna array of Claim 1 wherein the redirection device and the at least two antenna elements are located on a common support structure.

12. The antenna array of Claim 1 wherein a surface of the redirection device comprises a reflector material selected from the group consisting of metallic surfaces, metallized surfaces, screens, and grating patterns.

13. A communication system for communicating information via a wireless link between a first location and a second location, comprising:

a first antenna array arranged at the first location including;

at least two antenna elements each to transmit information as a narrow beam signal to be directed toward a second location, the antenna elements including at least one antenna element to transmit a narrow beam signal toward a redirection point different from the second location; and

a redirection device located at the redirection point to reflect the narrow beam signal from the at least one antenna element and to redirect the received narrow beam signal toward the second location;

wherein the narrow beam signals directed towards the second location are spaced apart by a separation distance at the first location that results in an interference pattern being formed at the second location with peak-to-peak spacing narrower than the individual antenna element beams, the interference pattern including peaks and nulls; and

a second antenna array arranged at the second location including at least two antenna elements to receive the narrow beam signals from the first antenna array.

14. The communication system of Claim 12 wherein at least one of the second location antennas receives transmitted signals redirected from a redirection point; and

a second location redirection device is located at the second location redirection point to redirect narrow beam signals received from the first location toward the at least one second location antenna.

15. The communication system of Claim 14 wherein the second array antenna elements transmit information and the at least two first array antenna elements receive information such that full duplex communication over multiple spatial channels between the first location and the second location may be established.

16. The communication system of Claim 13 wherein the separation distance is selected to approximately solve the following equation;

$$x \approx \sqrt{\frac{\lambda \cdot d}{2}}$$

where: x is the separation distance,
d is a distance between the first location and the second location, and
lambda is a wavelength of the narrow beam signals.

17. The communication system of Claim 14 wherein a one of the second location redirection device and second location

antenna elements that directly receive signals from the first antenna array is approximately aligned with a peak of the interference pattern.

18. The communication system of Claim 17 wherein the other of the second location redirection device and second location antenna elements that directly receive signals from the first antenna array is spaced apart from the one by approximately the separation distance.

19. The communication system of Claim 14 wherein another of the first location antenna elements aims another narrow beam signal directly at the second location.

20. The communication system of Claim 14 wherein at least one of the first antenna array redirection device and the second antenna array redirection device comprise a curve-shaped passive reflector.

21. The communication system of Claim 14 wherein at least one of the first antenna array redirection device and the second antenna array redirection device comprise a flat-plate reflector.

22. The communication system of Claim 14 wherein the first antenna array antenna elements and the second antenna array antenna elements comprise directional antennas.

23. The communication system of Claim 14 wherein at least one of the first antenna array antenna elements and the second antenna array antenna elements comprise a standard parabolic antenna.

24. The communication system of Claim 20 wherein at least one of the first antenna array antenna elements and the second antenna array antenna elements comprise a curve-shaped antenna.

25. The communication system of Claim 14 wherein the first antenna array redirection device is located at the first location.

26. The communication system of Claim 14 wherein at least one of a surface of the first antenna array redirection device and a surface of second antenna array redirection device are made of a reflector material selected from the group consisting of metallic surfaces, metallized surfaces, screens, and grating patterns.

27. A method of communicating information via a wireless link between a first location and a second location, the method comprising:

transmitting a first narrow beam signal from the first location to be directed towards a receiver at the second location;

transmitting at least a second narrow beam signal from the first location towards a first redirection point associated with the first location;

redirecting the second narrow beam signal from the first redirection point towards the receiver; and

spacing the first and second narrow beam signals apart by a predetermined separation distance at the first location such that the narrow beam signals from the first location converge and overlap to form an interference pattern proximate to the receiver, the interference pattern including peaks and nulls having a peak-to-peak spacing narrower that a width of each of the received narrow beam signals..

28. The method of Claim 27 wherein the first narrow beam signal is aimed directly at the receiver.

29. The method of Claim 27 wherein the first narrow beam signal is aimed towards a second redirection point different than the receiver.

30. The method of Claim 29 further comprising redirecting the first narrow beam signal from the second redirection point towards the receiver.

31. The method of Claim 27 wherein the separation distance is selected to approximately solve the following equation;

$$x \approx \sqrt{\frac{\lambda \cdot d}{2}}$$

where: x is the separation distance,
d is a distance between the first location and the second location, and
lambda is a wavelength of the narrow beam signals.

32. The method of Claim 27 further comprising controlling phasing of the first and second narrow beam signals to control locations of the peaks and nulls.

33. The method of Claim 32 wherein the locations of the peaks and nulls are interchanged in response to controlling the phase of the first and second narrow beam signals.

34. The method of Claim 32 further comprising transmitting from the first location, a plurality of other

narrow beam signals in superposition, each of the narrow beam signals including a data stream;

spacing apart each of the other narrow beam signals at the first location by the separation distance;

controlling of the other narrow beam signals controlled in amplitude and phase such that peaks and nulls of the superposed signals are interchanged, so that in response thereto, the receiver generates independent data streams.

35. The method of Claim 27 wherein the peak-to-peak spacing is approximately equal to twice the separation distance.

36. The method of Claim 27 further comprising receiving the first and second narrow beam signals in superposition at the second location, wherein receiving devices for receiving the narrow beam signals are spaced apart approximately the separation distance.

37. The method of Claim 36 further comprising varying phasing of the fist and second narrow beam signals to control alignment of the peaks and nulls with receiving devices of the receiver.

38. The method of Claim 36 further comprising varying the amplitudes of the narrow beam signals to control alignment of nulls with receiving devices of the receiver.

39. The method of Claim 27 wherein redirecting the second narrow beam signal comprises passively reflecting the second narrow beam signal.

40. The method of Claim 27 further comprising locating the first redirection point at the first location.